California Regional Water Quality Control Board

Central Valley Region

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FROM: Melissa Morris
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DATE: 15 August 2005

SUBJECT: RESPONSE TO REVIEW OF ANNUAL MONITORING REPORT – EAST SAN JOAQUIN WATER QUALITY COALITION

Staff Review

On 1 April 2005, the Regional Water Quality Control Board (Water Board) received the Annual Monitoring Report (AMR) for the East San Joaquin Water Quality Coalition (Coalition). This report was submitted by the Coalition to meet the conditions of Resolution R5-2003-0105 and the associated Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Waiver) adopted by the Water Board.

Water Board staff has performed a review of the AMR to evaluate the document for the required reporting conditions detailed in Resolution R5-2003-0105, the conditions set forth in the Coalition's Monitoring and Reporting Program Plan (MRP Plan) and Quality Assurance Project Plan (QAPP), and to assess the quality of the data generated and the conclusions and recommendations presented. The review has been broken into three major categories: 1) a discussion of administrative aspects; 2) a discussion of analytical aspects, and 3) a discussion of waiver compliance.

Administrative Aspects

The Coalition's AMR was submitted on time, under appropriate cover letter and included the major components required by Resolution R5-2003-0105. Sampling was performed at the six sites in two sampling events and the samples collected were analyzed for the required constituents. Sampling sites were identified and justified through detailed descriptions and future sites were outlined as well. Data was tabulated in an easy to read format and highly organized to detail each event and included corresponding laboratory and field quality control measures. Overall the structure and format of the report was highly functional and met expectations. However, a few administrative deficiencies were noted.

Item 1: All sampling results from the 2004/05 storm season were not included within this report and should be submitted as soon as possible.

Item 2: The submission of raw data sheets for all analysis is required. Specifically, raw data for *E.coli* analyses and toxicity bench sheets that contain daily data for temperature, DO, pH, conductivity, and organism counts, were missing from the submittal. Sets of raw data for pesticide analyses were received on 23 May 2005.

Item 3: Flow/discharge measurements are required to be taken at each site for each event. These measurements should consist of channel dimensions and velocities taken at strategic points across the water body. Once these measurements are collected and recorded at each site the discharge should be calculated as a value of cubic feet per second. Staff advises that discharge measurement worksheets should be included with each field sheet to aid the sampling crew in taking the appropriate measurements and to show the calculations that were used to determine the discharge value.

Item 4: Tabulated quality control (QC) results were provided, however, staff recommends the addition of an "expected value" column within the table. This column would store such information as the chemical spike concentration for the laboratory control spikes (LCS), matrix spikes (MS), and the result of the original analysis for sample duplicates, LCS duplicates, and MS duplicates. The presence of the information within the table will aid the Coalition and Water Board staff in directly calculating the relative percent difference (%RPD) and percent recovery (%REC).

Item 5: Communication reports need to be promptly sent to the Water Board when toxicity is detected or water quality objective exceeded. Communication reports need to be submitted for exceedances of all water quality parameters, including pH, DO, coliform, pesticides and other parameters that have associated Basin Plan objectives. Within the 2004 Irrigation Season there were numerous instances when a communication report should have been submitted for water quality exceedances and was not. One instance out of five toxic events failed to be within a communication report. Staff has recognized an improvement to the timeliness of communication report submittal and inclusion of pesticide water quality exceedances since the 1 April 2005 AMR.

Analytical Aspects

Chemical analyses of samples collected for the AMR were run in accordance with the methods prescribed in Resolution No. R5-2003-0105 with the results presented in the required tabulated format. The review of the analytical results presented in the AMR had been broken down into the following categories: analytical parameters, toxicity testing; pesticide testing; and quality control findings.

Item 6: Analytical parameters are within accepted limits with the following exceptions.

Date	In a Comm Report ?	Discussed In AMR?	Location	Analyte	Result	MDL (Method Detection Limit)	Water Quality Goal/Objective	Source of WQG/O
31-Jul-04	No	No	Duck Slough @ Gurr Road	Chlorpyrifos	0.017 ug/L	0.05 ug/L (old)	0.02 ug/L, 0.014 ug/L	Freshwater Aquatic Life Protection. NAWQC. Maximum 1-Hour Ave. Freshwater Aquatic Life Protection. CADFG. 4-day Average
29-Sep-04	No	No	August Road Drain Upstream of Crows Landing Bridge	Chlorpyrifos	0.026 ug/L	0.05 ug/L (old)		
31-Jul-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	Conductivity	2082 µS/cm	NA	700 µS/cm	Agricultural Water Quality Goals (Ayers & Westcott)
31-Aug-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	Conductivity	1093 µS/cm	NA		
29-Sep-04	No	**Yes**	Duck Slough @ Gurr Rd	Conductivity	701 µS/cm	NA		
31-Jul-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	E.coli	300 MPN/100ml	2 MPN/100ml	126 MPN/100ml	Ambient Water Quality Criteria for Bacteria for Waters Designated for Contact Recreation. USEPA
31-Jul-04	No	**Yes**	Duck Slough @ Gurr Road	E.coli	350 MPN/100ml	2 MPN/100ml		
31-Jul-04	No	**Yes**	Dutchmans' Creek @ Gurr Road	E.coli	1600 MPN/100ml	2 MPN/100ml		
01-Sep-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	E.coli	300 MPN/100ml	2 MPN/100ml		
01-Sep-04	No	**Yes**	Dutchmans' Creek @ Gurr Road	E.coli	1600 MPN/100ml	2 MPN/100ml		
30-Sep-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	E.coli	240 MPN/100ml	2 MPN/100ml		
30-Sep-04	No	**Yes**	Dutchmans' Creek @ Gurr Road	E.coli	500 MPN/100ml	2 MPN/100ml		
31-Jul-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	TDS	1400 mg/L	5 mg/L	450 mg/L	Agricultural Water Quality Goals (Ayers & Westcott)
01-Sep-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	TDS	710 mg/L	5 mg/L		
30-Sep-04	No	**Yes**	August Road Drain Upstream of Crows Landing Bridge	TDS	730 mg/L	5 mg/L		
30-Sep-04	No	**Yes**	Duck Slough @ Gurr Road	TDS	540 mg/L	5 mg/L		

Item 7: Toxicity testing was within accepted limits with the following exceptions.

Date	In a Comm Report?	Location	Species	Result	TIE Conducted	TIE Conclusion	Site Resampled	Resample Results
31-Jul-04	TRUE	Merced River @ Sante Fe Drive	Cerio.	75% Survival	No	Did Not Meet TIE Trigger	No	NA
31-Aug-04	FALSE	Duck Slough @ Gurr Road	Hyallella	34% Survival	NA	NA	No	NA
31-Aug-04	TRUE	Merced River @ Sante Fe Drive	Pimph.	65% Survival	No	Did Not Meet TIE Trigger	No	NA
31-Aug-04	TRUE	Merced River @ Sante Fe Drive	Cerio.	45% Survival	Yes	Inconclusive	Yes	No Persistence
23-Sep-04	TRUE	Duck Slough @ Gurr Road	Selan.	27% Reduced Growth	No	NA	No	NA

Item 8: Pesticide sampling results did detect some of the pesticides tested for, at or above detection limits. Item 6 lists two detections of pesticides above the water quality goals/objectives. Item 9 lists six additional detections of pesticides below the water quality goals/objectives. Although detections

listed in Item 9 did not result in exceedances of water quality goals, they indicate locations where sources need to be identified, and management practices should be evaluated to reduce the possibility of pesticides entering the water body.

Item 9: Detections of Pesticides below water quality goals.

Comments	Date	Location	Analyte	Result	MDL (Method Detection Limit)	Water Quality Goal/Objective	Source of WQG/O
Not an Exceedance	31-Jul-04	August Road Drain Upstream of Crows Landing Bridge	Dimethoate	0.31 ug/L	0.10 ug/L	1.0 ug/L	California State Action Levels
Not an Exceedance	31-Jul-04	Duck Slough @ Gurr Road	Trifluralin	0.045 ug/L	0.10 ug/L	5 ug/L	USEPA Health Advisory for Drinking Water
Not an Exceedance	31-Jul-04	Duck Slough @ Gurr Road	Dimethoate	0.062 ug/L	0.10 ug/L	1.0 ug/L	California State Action Levels
Not an Exceedance	31-Jul-04	Dutchmans' Creek @ Gurr Road	Dimethoate	0.066 ug/L	0.10 ug/L	1.0 ug/L	California State Action Levels
Not an Exceedance	31-Jul-04	Dutchmans' Creek @ Gurr Road	Chlorpyrifos	0.013 ug/L	0.05 ug/L(old)	0.02 ug/L, 0.014 ug/L	Freshwater Aquatic Life Protection. NAWQC. Maximum 1-Hour Ave. Freshwater Aquatic Life Protection. CADFG. 4-day Average
Not an Exceedance	29-Sep-04	Duck Slough @ Gurr Road	Esfenvalerate/ Fenvalerate	0.05 ug/L	0.02 ug/L	NA	1/10 LC50

Item 10: It was noted that some method detection levels used for the 2004 Irrigation Season pesticide analysis were inappropriate to measure exceedances of the water Quality Objectives for each possible contaminant. Specifically, detection limits were well above the fresh water aquatic life protection water quality goal for diazinon (0.05 ug/L) and chlorpyrifos (0.014 ug/L). Water Board Staff recognizes that the coalition has made a statement in regards to improvements and staff has noted reductions within the method detection levels within a communication report dated 6 April 2005. Per the letter addressed to the coalition on 1 April 2005 these items are included as those that must be addressed formally through a QAPP amendment and reviewed by staff before the final approval of the WER, MRP, and QAPP can be considered.

Item 11: Table B-6C on page 35 and Table B-6d on page 36 of the Coalition's QAPP quality control requirements for organophosphorus or pyrethroid pesticide analysis indicates that field blanks and field duplicates will be conducted a frequency of one per event. It was noted that field duplicates and field blanks were performed within the first sampling event but missing from the second event. These tables also indicate that matrix spikes, matrix spike duplicates, laboratory spikes, and laboratory spike duplicates will occur at a frequency of one per batch. It was noted that laboratory spike duplicates were missing from the pesticide analyses.

Table B-7 on page 37of the Coalition's QAPP quality control requirements for *E.coli* bacterial analysis indicates that field blanks, method blanks, lab duplicates, and negative & positive controls will be conducted. Staff recognizes that a field blank and duplicate were conducted within the first event, however all other indications of QC samples and analyses for *E.coli* are absent from the report.

Staff has also identified that percent recovery ranges stated within the raw and tabulated laboratory results do not match those outlined for the coalition within the Table B-6C on page 35 and Table B-

6d on page 36. Surrogate recoveries for Pyrethroid analysis including the chemical TCmX routinely fell below the Coalition's recovery limit of 65-135% and DECA recovery also fell out of range on a few occasions. It is recognized that the statement was made by the coalition within the executive summary that "Goals for the laboratory analysis include improvement on surrogate recoveries and upper and lower recovery percentages in the matrix spike".

Waiver Compliance

Certain aspects of the Waiver program may not have been completely addressed in the Watershed Evaluation, Coalition QAPP and MRP Plan, and subsequently, were not included in the AMR. In a letter from the Water Board dated 1 April 2005 additional information and/or actions were required to be undertaken in order to fully comply with the Waiver program and begin review of submittals before the final approval of the WER, MRP, and QAPP can be considered. These actions included the modification of the Coalitions QAPP to include appropriate method detection levels and increase the recovery ranges for specific constituents. At this time the Water Board has not received a formalized QAPP amendment and recommends that one be submitted in a timely fashion.

In addition to the requirements set forth in the letter dated 1 April 2005, it is staff's position that additional information and/or actions should be undertaken at this time in order to fully comply with the Waiver program. These actions include: increasing the number of sampling points; the timeliness of sampling; and actions taken to address water quality impacts.

Item 12: Monitoring and Reporting Program, Order No. R5-2003-0105 (pages 8 and 10) states that the number of monitoring sites shall be based on acreages and watershed characteristics sufficient to allow for the calculation of load discharged for every waste parameter. Additionally, all major drainages must be part of baseline monitoring. At least 20% of the intermediate drainages must be monitored during the first year and the second 20% the second year, etc.

Item 13: The timeliness and frequency of sampling set forth in the Waiver program is once a month during the irrigation season and twice during the storm season. Additionally, when toxicity is discovered, re-sampling is to be performed and samples are to be collected upstream to identify the source. For the 2004 Irrigation Season monitoring events took place in July, August, and September, not fully representing the entire Irrigation Season. Because Storm event sampling results have not yet been submitted, it is not clear whether this requirement has been met by the coalition. The coalition should begin monitoring events at the beginning and continue through the irrigation season.

Item 14: The Water Board adopted Resolution No. R5-2005-0833 on 15 August 2005 that updated and replaced the Monitoring and Reporting Program for Coalition Groups. This MRP Plan requires that when monitoring results indicate that water quality objectives are exceeded in the surface waters of the Coalition Group area, the Coalition Group shall submit a series of reports including and Exceedance Report, Communication Report, and Evaluation Report. The details concerning the timelines and requirements for content of each report can be reviewed starting on page 12 of Resolution No. R5-2005-0833.

Item 15: August Road Drain Upstream of Crows Landing Bridge and Duck Slough @ Gurr Road both indicated numerous water quality problems. Chlorpyrifos was detected at these sites above the water quality goals for this constituent and therefore a pesticide use and management plan study

should be implemented for both those sites. The coalition should begin collecting detailed information for the surrounding land areas and identifying possible sources for water quality exceedances. This information should be shared with the Water Board and the landowners within the study areas to aid in the development management plans within those areas. Staff also recommends, as part of the intensive study, that additional monitoring sites should be selected above the August Road Drain Upstream of Crows Landing Bridge, Duck Slough @ Gurr Road, and Merced River @ Sante Fe Drive locations to determine the possible sources of toxicity. Confirmation of suspected sources of toxicity due to illegal dumping need to be confirmed by sampling upstream of the suspected dumpsite. It is important to collect samples that represent the effects of irrigated agriculture and are not masked by other illegal activities. The Coalition should identify a different sampling location upstream of a suspected dumpsite to represent the same drainage.

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